

**REMARKS**

Claims 1-14 and 21-26 are pending in this application, claims 15-20 having been cancelled as being drawn to a non-elected invention and claims 21-26 being newly added by the above amendment. Of these claims, claims 1-3, 5-12 and 14 stand rejected under 35 USC §112, second paragraph, as being indefinite for the reasons set forth on pages 4 and 5 of the Office Action. Further, claims 1-3 and 5-7 stand rejected under 35 USC §102(b) as being anticipated by Taylor; claims 1-3 and 5-7 stand rejected under 35 USC §102(b) as being anticipated by Childers et al.; claims 1-3 and 5 stand rejected under 35 USC §102(b) as being anticipated by Fee; claims 1-3 and 5 stand rejected under 35 USC §102(b) as being anticipated by Johnson; claims 8, 9, 11 and 12 stand rejected under 35 USC §102(b) as being anticipated by Samuels et al.; claims 1-3 and 5-7 stand rejected under 35 USC §103(a) as being unpatentable over Theriault et al.; claim 10 stands rejected under 35 USC §103(a) as being unpatentable over Samuels et al. in view of Ho or Carlton et al.; and claim 14 stands rejected under 35 USC §103(a) as being unpatentable over Samuels in view of Taylor. Also, claims 1-3 and 5-7 stand rejected under obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,531,701. Further, the specification has been objected to for the reasons stated on page 3 of the Office Action and claims 2 and 11 have been objected to as being of improper dependent form for the reasons stated on page 4 of the Office Action.

In view of the enclosed Terminal Disclaimer, the above amendments and the following remarks, these rejections and objections are traversed, and reconsideration of the application is respectfully requested.

Applicant hereby affirms the election of Group I, claims 1-14, and the species of claims 3 and 12. By the above amendment, claims 15-20 have been cancelled as being drawn to the non-elected invention. Dependent claims 4 and 13 have not been cancelled as it is Applicant's position that the independent claims are generic.

Concerning the objections to the specification, the above amendment to the specification in paragraph [0027] identifies BG as bacillus subtilis. Also, by the above amendment, paragraph [0024] has been amended to state that the absorbed radiation energy causes the molecules to be thermalized as a result of collision energy transfer causing inter-molecular relaxation. Further, the first sentence in paragraph [0008] has been removed. It is therefore respectfully requested that the objection to the specification be withdrawn.

Concerning the claim objections, Applicant submits that one of ordinary skill in the art would not necessarily refer to a spectral imager as a spectrometer. Support for this position can be found in the Examiner's Restriction requirement that the spectral imager of dependent claims 4 and 13 is a patentably distinct species than the spectrometers recited in dependent claims 3 and 12. Therefore, Applicant submits that claims 2 and 11 are of proper dependent form, and respectfully request withdrawal of the claim objection.

MPEP 2173.02 states that, "[i]n reviewing a claim for compliance with 35 USC §112, second paragraph, the Examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function . . . ." MPEP 2173.02 further states that, "[i]f the language used by Applicant satisfies the statutory requirements of 35 USC §112, second paragraph, but the Examiner merely wants the Applicant to improve the clarity or precision of the language used, the claim must not be rejected under 35

USC §112, second paragraph, rather, the Examiner should suggest improved language to the Applicant.” MPEP 2173.04 states that the “[b]reath of a claim is not to be equated with indefiniteness.” MPEP 2173.04 also states that, “[i]f the scope of the subject matter embraced by the claims is clear, and if Applicant’s have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 USC §112, second paragraph.” MPEP 2173.05(b) states that, “[t]he fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 USC §112, second paragraph,” and “[a]cceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.”

Based on the requirements for a §112, second paragraph, rejection discussed above, Applicant submits that the distance of the sample cloud relative to the radiation source and the spectrum analysis device does not need to be claimed, and one of ordinary skill in the art would readily recognize applicable distances for the system in light of the specification.

Applicant respectfully submits that the Examiner’s statement that it is not clear if claim 1 recites any radiation source or any spectrum analysis device doesn’t make any sense. Claim 1 claims “a radiation source” and “a spectrum analysis device.” Figure 1 shows a radiation source 14 and a spectrum analysis device 18. Applicant submits that the radiation source and the spectrum analysis device of the independent claim 1 would be clear to one of ordinary skill in the art.

Based on the requirements for a §112, second paragraph, rejection discussed above, Applicant submits that the language “a spectrum analysis device positioned relative to the first end of the chamber” is not indefinite under §112, second

paragraph, and claim 8 does not need to include specifics as how the device is positioned relative to the first end of the chamber.

Concerning dependent claim 10, Applicant submits that one of ordinary skill in the art would recognize how to use a fan to generate an aerosol from a sample powder. It is therefore respectfully requested that the §112, second paragraph, rejections be withdrawn.

The Examiner is respectfully reminded of the requirements for anticipating a claim under §102. Particularly, MPEP 2131 states that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”

U.S. Patent No. 5,373,160 issued to Taylor discloses a remote hazardous air pollution monitoring system 35 that measures atmospheric absorption by hazardous pollutants. The system 35 includes detectors 62 and 64 that detect certain optical wavelengths. Nowhere in Taylor does it teach that the laser beam warms the sample cloud 30 relative to the surrounding background, and a spectrum analysis device that generates an emissions spectrum of an aerosol in a sample cloud. Therefore, Applicant submits that Taylor cannot anticipate independent claim 1.

Childers et al. teaches an open-path Fourier transform infrared (OP/FTIR) spectrometer used to measure the concentration of ammonia, methane and other atmospheric gasses around an integrated industrial swine production facility in eastern North Carolina. Nowhere in Childers et al. does it teach using a radiation source to raise the temperature of a sample cloud, and a spectral analysis device that receives emissions from the cloud and generates an emission spectrum of aerosols in the cloud from the emissions. Therefore, Applicant submits that Childers et al. cannot anticipate independent claim 1.

U.S. Patent No. 5,294,796 issued to Fee discloses a remote vapor detection system 10 including a laser 12 and a wavelength selective receiver 14. The laser 12 emits a laser beam that heats a background 20 relative to a sample cloud 22. The heated background acts as a broadband infrared source for measuring absorption characteristics of the gas or vapor constituents in the sample cloud 22. Nowhere in Fee does it teach that the laser is used to heat the cloud itself, and nowhere in Fee does it teach that the receiver 14 generates an emissions spectrum of aerosols in the sample cloud 22. Therefore, Applicant submits that Fee cannot anticipate independent claim 1.

U.S. Patent Publication 2004/0211900 discloses a system 1 including a source 10 positioned a distance D from a receiver 20. The source 10 includes a surface 12 and a heating component 14. The receiver 20 receives emissions from a gas between the source 10 and the receiver 20 to generate an absorption spectrum thereof. Thus, the Johnson system does not heat the gas itself, but heats a background, particularly the surface 12. Further, nowhere in Johnson does it teach that the gas includes an aerosol, and nowhere in Johnson does it teach that the receiver 20 generates an emissions spectrum of an aerosol. Therefore, Applicant submits that Johnson cannot anticipate independent claim 1.

Samuels et al. teaches a system for measuring bio-aerosols contained within a chamber, as shown in figure 1. An FTR provides a spectral image of the bio-aerosols, and a black body radiation source provides a background. The black body radiation source does not heat the aerosol, but merely provides a heated background relative to the aerosol. Particularly, Samuels et al. states that the chamber conditions are maintained at 24-30°C, the temperature of the aerosol, which is not heated. Applicant submits Samuels et al. does not teach a radiation

source that heats a sample including the aerosol relative to its background from which an emissions spectrum is generated. Therefore, Samuels et al. cannot anticipate independent claim 8.

MPEP 2143 sets out the basic requirements to establish a *prima facie* case of obviousness. Particularly, in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all of the claim limitations.

Theriault teaches a system for measuring the temperature of a cloud using an FTIR detector. Nowhere in Theriault does it teach or suggest raising the temperature of the cloud using a radiation source, and nowhere in Theriault does it teach or suggest generating an emissions spectrum of aerosols in the cloud. Therefore, Applicant submits that Theriault does not make independent claim 1 obvious because it does not teach all of the claim limitations.

U.S. Patent No. 4,568,190 issued to Carlton et al. discloses an electro-optical system for the direct quantitative measurement of the mass concentration of mono-dispersed aerosols. However, Carlton et al. does not teach or suggest heating a sample including an aerosol, and then generating an emissions spectrum of the aerosol. Therefore, Applicant submits that Carlton et al. fails to provide the teaching missing from Samuels et al. to make Applicant's independent claim 8 obvious.

U.S. Patent No. 4,710,887 issued to Ho discloses an aerosol generating system. However, Ho does not teach or suggest heating a sample including an aerosol, and then generating an emissions spectrum of emissions from the sample.

Therefore, Applicant submits that Ho fails to provide the teaching missing from Samuels et al. to make Applicant's independent claim 8 obvious.

Enclosed herewith is a Terminal Disclaimer disclaiming any portion of the term of a patent that may issue from this application beyond the term of U.S. Patent No. 6,531,701. It is therefore respectfully requested that the double patenting rejection be withdrawn.

In view of the remarks above, it is respectfully requested that the §102 and §103 rejections be withdrawn.

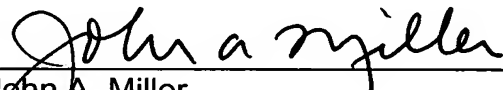
It is now believed that this application is in condition for allowance. If the Examiner believes that personal contact with Applicant's representative would expedite prosecution of this application, he is invited to call the undersigned at his convenience.

Respectfully submitted,

**WARN, HOFFMANN, MILLER  
& LaLONE, P.C.**

Attorneys for Applicant(s)

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John A. Miller  
Registration No. 34,985

P.O. Box 70098  
Rochester Hills, MI 48307  
Telephone: (248) 364-4300